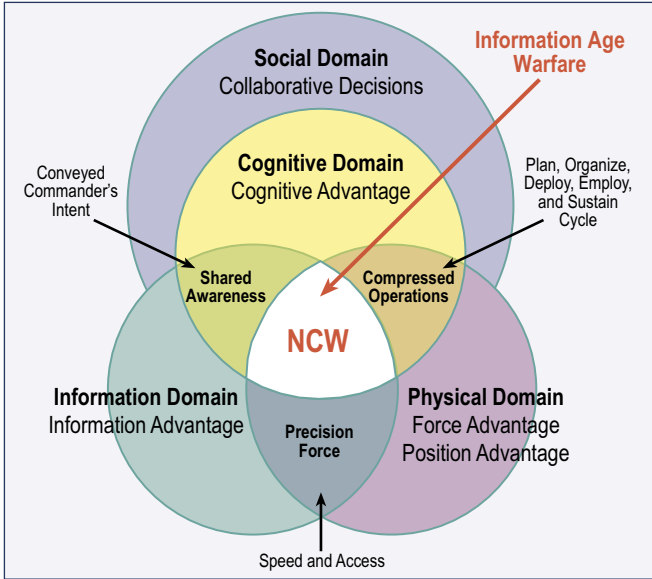# The Implementation of Network-Centric Warfare

The powerful combination of network-centric capabilities in the form of an effects-based approach to planning and execution provides U.S. forces with the potential to achieve the desired effects on an adversary's behavior.

The Joint Operations Concepts (JOpsC) and their subordinate Joint Operating Concepts (JOCs), Joint Functional Concepts (JFCs) and Joint Integrating Concepts (JICs) reflect the vision of a transforming, network-centric joint force. The required capabilities of this force are expressed in terms of the four domains of conflict: physical, information, cognitive, and social.

The domain intersections represent dynamic and vital areas of information age warfare.

- The precision force vital to the conduct of successful joint operations is created at the intersection of the information and physical domains.

- Shared awareness and tactical innovation occur at the intersection between the information and cognitive domains.

- The intersection between the physical and cognitive domains is where the time compression and lock-out phenomena occur, where tactics achieve operational and even strategic effects, and where high rates of change are developed.

NCW exists at the very center, where all four domains intersect.

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Office of
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Force Transformation and Network-Centric Warfare

As one of the major components of the *National Defense Strategy,* force transformation supports the major defense policy goals of:

- Assuring allies and friends;

- Dissuading potential adversaries;

- Deterring aggression and countering coercion against U.S. interests;

- If deterrence fails, decisively defeating any adversary.

The concepts of network-centric warfare (NCW) and the growing network-centric capabilities of U.S. forces, evident during Operations Enduring Freedom and Iraqi Freedom, are transforming how we fight. **Clearly, NCW is at the very heart of force transformation.**

Governing Principles of NCW
• Fight first for *information superiority*
• Access to information: *shared awareness*
• *Speed of command* and decision making
• *Self-synchronization*
• *Dispersed forces:* non-contiguous operations
• *Demassification*
• *Deep sensor reach*
• *Alter initial conditions* at higher rates of change
• *Compressed operations* and levels of war

The development of network-centric organizations and the growing capability of U.S. forces to conduct network-centric operations are not ends in themselves. Instead, they provide an essential means to an end, the conduct of effects-based operations (EBO). U.S. forces must apply their network-centric capabilities to achieve strategic, operational, and tactical objectives.

"U.S. forces must leverage information technology and innovative network-centric concepts of operations to develop increasingly capable joint forces. New information and communications technologies hold promise for networking highly distributed joint and multinational forces. . ."

Secretary of Defense Donald H. Rumsfeld

What is Network-Centric Warfare?

The term "network-centric warfare" broadly describes the combination of emerging tactics, techniques, and procedures that a fully or even partially networked force can employ to create a decisive warfighting advantage.

- NCW is first of all about human behavior as opposed to information technology. The focus is on the verb "to network" rather than on the noun "network," which is just an enabler.

- NCW is a concept that, at the highest level, constitutes the military's response to the Information Age.

- **NCW is an emerging theory of war** because it identifies new sources of power (information sharing, information access, speed), how those sources relate to each other, how they are brought to bear to achieve the desired outcome, and how they link to political objectives.

Network-Centric Warfare
... An Emerging Theory of War

- Sources of power
- Relationships among power centers
- Linkage to outcome
- Linkage to political objectives

... how does war work now?

The basis of NCW as an emerging theory of war is that power flows from society and society's methods of creating power and wealth and that there has been a fundamental shift in sources of power from industry to information. This is comparable to the earlier shift from the Agrarian Age to the Industrial Age.

Many of the recent and ongoing efforts to enhance the network-centric capabilities of U.S. forces have focused on the tactical and operational levels of war. However, the relevance of NCW extends to the strategic level. Strategy involves choices that control the scope, pace, and intensity of a conflict.
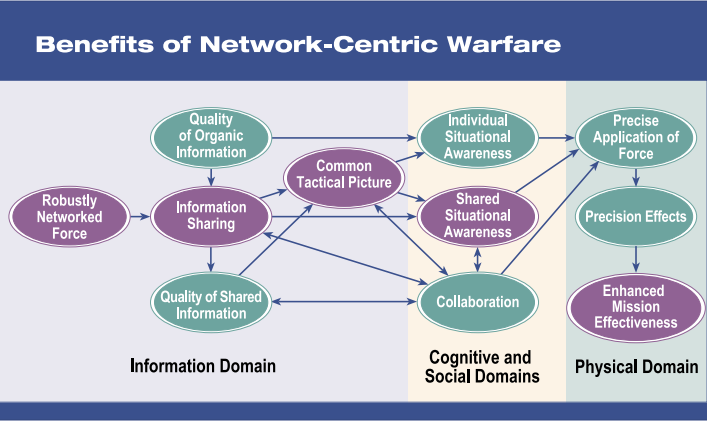
The principles of NCW provide a new foundation with which to examine and consider changes in military missions, operations, and organizations in the Information Age. The full application of these principles will accelerate the decision cycle by linking sensors, communications networks, and weapons systems via an interconnected grid, thereby enhancing our ability to achieve information and decision superiority over an adversary.

Benefits of Network-Centric Warfare?

Forces that are networked outfight forces that are not, everything else being equal.

Evidence accumulated from a wide range of U.S. military activities, including combat operations, training events, exercises, and demonstrations, has strongly supported the validity of NCW as an emerging theory of war and illustrated the power of networked forces. This evidence strengthens and reinforces the four major tenets of NCW.

- A robustly networked force improves information sharing.

- Information sharing provides a common tactical picture and enhances the quality of information and shared situational awareness.

- Shared situational awareness enables collaboration and self-synchronization, and enhances sustainability and speed of command.

- These, in turn, dramatically increase overall mission effectiveness.
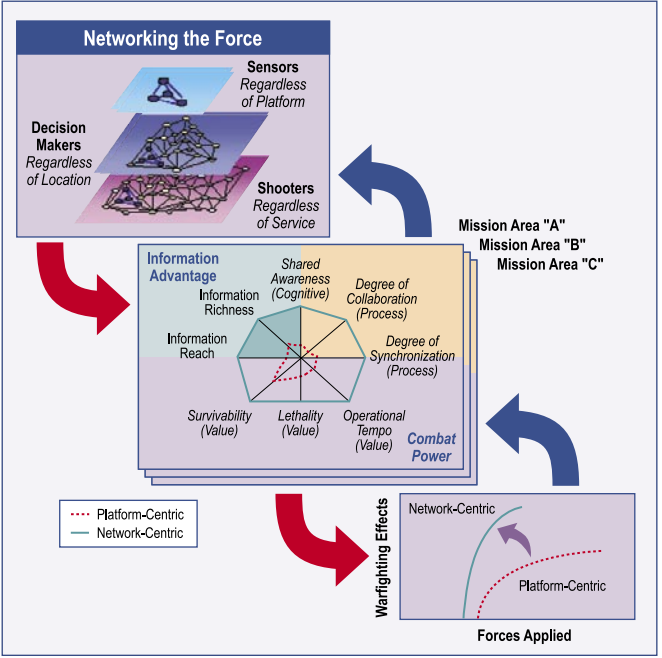

Benefits of Network-Centric Warfare

Recent operational experience has repeatedly shown that only forces that are truly joint, with comprehensively integrated capabilities and operating according to the principles of NCW, can fully exploit the highly path-dependent nature of Information Age warfare. They do so by altering initial conditions, developing and sustaining high rates of change, and repeatedly creating new operational realities that "lock out" an opponent's ability to cope effectively.

NCW generates increased combat power by networking sensors, decision makers, and shooters to achieve shared awareness, increased speed of command, high tempo of operations, greater lethality, increased survivability, and a degree of self-synchronization.

Strategy for Implementation of Network-Centric Warfare.

There are seven key elements of the strategy for implementing NCW in the Department of Defense (DoD):
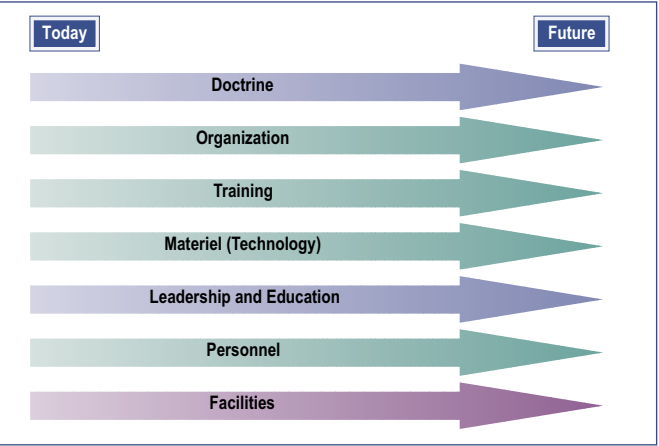
- Refine the new rules of Information Age warfare and the theory of NCW through simulation, testing, experimentation, and actual combat experience.

- Apply the NCW theory enterprise-wide in DoD.

- Accelerate networking of the joint force at the tactical level, as well as at the strategic and operational levels.

- Experiment with network-centric concepts and capabilities to develop new and better ways to conduct network-centric operations (NCO).

- Accelerate deployment and employment of new network-centric concepts and capabilities.

- Address challenges of allied and coalition NCO.

- Develop doctrine and tactics, techniques, and procedures for NCO.

Networking the Force

The Department's strategy for implementing NCW is impacting on key force development and investment decisions by the Department of Defense.

NCW Implementation

Transformation and NCW implementation deal with the co-evolution of the seven key functional areas of doctrine, organization, training, materiel (technology), leadership and education, personnel, and facilities (DOTMLPF).

Consequently, progress in implementing NCW cannot be measured solely by focusing on one dimension, such as technology or doctrine. Rather, progress must be assessed in terms of the maturity of mission capabilities that integrate key elements of DOTMLPF. A profound change in any one of these areas necessitates changes in all.

Ultimately, military transformation and NCW implementation are about changing the values, attitudes, and beliefs of the U.S. Armed Forces concerning how combat power is developed and employed. At the Joint and Service levels, significant progress is being made in developing NCW capabilities.

For a more in-depth description of the emerging theory of NCW, the growing evidence of the power of NCW, and the implementation of NCW in DoD, see the booklet, *The Implementation of Network-Centric Warfare,* published by the Office of Force Transformation in January 2005.

The booklet, may be viewed on the OFT website at: **www.oft.osd.mil**.